Software Requirements Specifications

For

Hall Management System

Version 1.0

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1. Introduction

1.1 Purpose

It is proposed to develop software to automate the bookkeeping activities of different halls associated with its day-to-day operations. This automation will be able to replace the drawbacks of large student and staff information physical files which were difficult to handle and is tedious. So, to overcome these issues we need software that serves the needs of both students and administrators.

1.2 Document Conventions

1. ATR - Action taken report
2. OS - Operating system

1.3 Intended Audience and Reading Suggestions

This document is intended for project developers, testers and users who want to view the requirements and specifications of this project. This document clearly describes various functional and non-functional requirements of the software.

1.4 Product Scope

Advantages of HMS over an existing manual system of the hall :

- Common platform for students and Administrators
- Automatic allotment process and ease in the calculation of mess charges and rent.
- Ease of use and time-efficient ● Reduced risks of human error
- Quick, easy and secure retrieval of information

1.5 References

The following were referred to while making the SRS document together with the one already given.

● IEEE. IEEE Std 830–1998 IEEE Recommended Practice for Software Requirements Specifications. IEEE Computer Society, 1998.

2. Overall D escription

2.1 Product Perspective

It is a new self-contained Product. It is not linked to any other systems and is standalone.

2.2 Product Functions

Our Product General functions include:

- Student Registration
- User login
- Allotment of rooms
- Displaying Room Details
- View and Clear dues
- Complaint Registration
- Check Occupancy of the hall
- Display statement of accounts
- Attendance of temporary workers
- Hiring or Firing staff

2.3 User Classes a nd Characteristics

- Typical users, such as Students who want to register complaints or pay dues using this software
- Administrative class, which include warden, HMC Chairman, Mess manager and
  Hall clerk who manages administrative works of the hall
- Developers who are interested in working on the project by further developing it or fix existing bugs

2.4 Operating Environment

- Windows 10
- Windows 9
- Windows 8

- Windows 2000
- Windows XP
- Windows Vista
- Linux
- Mac OS

2.5 Design and Implementation Constraints

HMS is developed in python 3.0.

2.6 Assumptions a nd Dependencies

It is assumed that there is python 3.0 installed in the device.

3.External Interface Requirements

3.1 User Interface

The GUI used is python Tkinter.

➔ Home Screen
- ◆ Student login
- ◆ Administrative login

➔ Student login
- ◆ User Profile
- ◆ Fee dues
- ◆ Complaint registration
- ◆ Print profile

➔ Administrative login
- ◆ Administrator
  - Create New student profile ◆ HMC Chairman
  - Allocate grants
  - View hall expenditures
- ◆ Warden

- Sends ATR
- Checks Occupancy of the hall
- View accounts
- Expenditure details
- Hire or Fire staff
- Print annual statement of accounts
- Payment to mess manager
- Payment to workers

◆ Mess Manager

- Mess fee details
- Print due students list

◆ Hall Clerk

- Attendance of staff

3.2 Hardware Interfaces

- The large database should be handled on the server-side

3.3 Software Interfaces

- OS- Windows
- Python 3.0

3.4 Communications Interfaces

For communication of software, the python 3.0 version should be installed and set up in a device as it is developed using python GUI programming.

4. Functional Requirements

4.1 Login

Priority: High

- **Use Case Name:** Login
- **Use Case Purpose:** The various actors use this functionality to login to their respective accounts
- **Use Case Precondition:** The actors have the correct login id and password

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- **Use Case Post Conditions:** The actors enter the HMS to perform activities **Failure Condition:** The login Credentials are wrong
- **Actors:** Student, Warden, Mess Manager, Hall Clerk, HMC Chairman

User Class: Student

4.2 Complaint Registration

Priority: Medium

- **Use Case Name:** Complaint Registration
- **Use Case Purpose:** Students use this functionality to make complaints to the warden related to the Hall.
- **Use Case Precondition:** The student has a login ID and password to enter the system.
- **Use Case PostCondition:** The complaint is generated and sent to the warden.
- **Failure Condition:** The Student doesn't have the valid credentials to enter the system.
- **Actors** : Student.

4.3 Create Account

Priority: High

- **Use Case Name:** Create Account
- **Use Case Purpose:** The student uses this functionality to create an account and request for a hall allotment.
- **Use Case Precondition:** The Student supplies the required details.
- **Use Case Post Conditions:** The request with the required details is sent to the HMC chairman
- **Failure Condition:** Null
- **Actors:** Student

4.4 Clear Dues

Priority: High

- **Use Case Name:** Clear Dues

- **Use Case Purpose:** The student uses this functionality to clear his dues like mess fee, room rent, amenity charges etc.
- **Use Case Precondition:** The user has dues that have to be cleared and the student has a login ID and password to enter the system.
- **Use Case PostCondition:** The dues will be cleared and the money is credited to the warden and the student name is removed from the mess duelist (after the warden pays to the mess manager)
- **Failure Condition:** The student does not have valid credentials to enter the system.
- **Actors:** Student

4.5 Print Profile

Priority: Low

- **Use Case Name:** Print Profile
- **Use Case Purpose:** The Student uses this functionality to print his profile details which include name, permanent address, contact number etc.
- **Use Case Precondition:** The actors have a login ID and password to enter the system.
- **Use Case PostCondition:** A copy of the required document gets printed as a PDF
- **Failure Condition:** The actor does not have valid credentials to enter the system.
- **Actors:** Student

User Class: Warden

4.6 Solve Complaint

Priority: Medium

- **Use Case Name:** Solve Complaint
- **Use Case Purpose:** The warden uses this functionality to check all the complaints and take appropriate action and send ATR to the respective students.

- **Use Case Precondition:** The warden has a login ID and password to enter the system.
- **Use Case PostCondition:** The Action Taken Report(ATR) is sent to the student who raised the complaint.
  Failure Condition: The warden doesn't have the valid credentials to enter the system.
- **Actors:** Warden

4.7 View Room Occupancy

Priority: Low

- **Use Case Name:** View Room Occupancy
- **Use Case Purpose:** The warden uses this functionality to check the room occupancy status.
- **Use Case Precondition:** The warden has the correct login id and password for entering the system.
- **Use Case PostCondition:** The room occupancy statistics will be displayed.
- **Failure Condition:** The warden doesn't have the valid credentials to enter the system.
- **Actors:** Warden

4.8 Pay Mess Manager

Priority: High

- **Use Case Name:** Pay Mess manager
- **Use Case Purpose:** The warden uses this functionality to pay the money collected from the students to the mess manager
- **Use Case Precondition:** The warden has collected the mess money from the students

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- **Use Case PostCondition:** The names of the students who have paid the mess money, will be removed from the mess duelist and the cheque is printed.
- **Failure Condition:** The warden doesn't have the valid credentials to enter the system.
- **Actors:** Warden

4.9 Hire/Fire Workers

Priority: Medium

- **Use Case Name:** Hire/Fire Workers
  Use Case Purpose: The hall warden uses this functionality to Hire/Fire workers as per his requirement.
- **Use Case Precondition:** The workers are available to hire and the worker already exists when firing.
- **Use Case Post Condition:** The worker's name is added or removed from the list of hall workers.
- **Failure Conditions:** The balance salary of the worker is not paid and the warden doesn't have the correct login credentials to enter the system.
- **Actors:** Warden

4.10 Pay Salary

Priority: High

- **Use Case Name:** Pay Salary
- **Use Case Purpose:** The warden uses this functionality to pay salary to the hall workers
- **Use Case Precondition:** The worker attended to his work (basing on the attendance, payment will be made accordingly) and the clerk has made the attendance list
- **Use Case PostCondition:** consolidated list of salary payable to each employee of the hall along with cheques for each employee is printed out.
- **Failure Condition:** The warden doesn't have valid credentials to make changes to the system
- **Actors:** Warden

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4.11 Request Grant

Priority: High

- **Use Case Name:** Request Grant
- **Use Case Purpose:** The warden uses this functionality to request a grant from the HMC by entering all the details of the expenditure of the hall.
- **Use Case Precondition:** The warden has the correct login credentials to enter the system.
- **Use Case PostCondition:** The grant request is sent to the HMC who can allocate the funds.
- **Failure Condition:** The expenditure details are not provided and the warden doesn't have valid credentials to enter the system.

Actors: Warden

4.12 Account Statements

Priority: High

- **Use Case Name:** Account Statements
- **Use Case Purpose:** The warden uses this functionality to view and print the consolidated statement of accounts.
- **Use Case Precondition:** The warden has the correct login credentials to enter the system.
- **Use Case PostCondition:** The account statement gets printed and can be sent to the institute for audit.
- **Failure Condition:** The warden doesn't have valid credentials to enter the system.
- **Actors:** Warden

User Class: HMC Chairman

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4.13 Issue Grants

Priority: High

- **Use Case Name:** Issue Grants
- **Use Case Purpose:** The HMC chairman uses this functionality to distribute the grants among the different halls.
- **Use Case Precondition:** The wardens have entered their expenditure against the allocations column
- **Use Case Post Conditions:** The Grants are distributed to the various halls and the money is credited in the hall corpus (accessible to the warden)
- **Failure Condition:** The warden fails to upload the hall expenditure data.
- **Actors:** HMC Chairman

4.14 HMC Expenses

Priority: Low

- **Use Case Name:** HMC Expenses
- **Use Case purpose:** The HMC Chairman will use this functionality to enter the petty expenses incurred by HMC.
- **Use Case Precondition:** The HMC Chairman has the correct login credentials
- **Use Case PostCondition:** The amount of expenses entered is deducted from the annual grant received from the Institute.
- **Failure Condition:** The wardens haven't updated their hall expenditures ● **Actors:** HMC Chairman

4.15 Administer Halls

Priority: Medium

- **Use Case Name:** Administer Halls
- **Use Case Purpose:** The HMC chairman uses this functionality to Administer various halls
- **Use Case Precondition:** The HMC chairman has the correct login credentials
- **Use Case Post Conditions:** The various details of the halls are set accordingly.
- **Failure Condition:** The HMC Chairman fails to have correct login credentials
- **Actors:** HMC Chairman

4.16 Allocating Halls

Priority: High

- **Use Case Name:** Allocating Halls
- **Use Case Purpose:** The HMC chairman uses this functionality to allocate halls to the students of the institute.
- **Use Case Precondition:** The Student supplies the required details.
- **Use Case Post Conditions:** The hall and room is allocated for the student
- **Failure Condition:** The HMC Chairman fails to have correct login credentials and the student fails to provide all the required details

- **Actors:** HMC Chairman

User Class: Hall Clerk

4.17 Mark Attendance

Priority: Medium

- **Use Case Name:** Mark Attendance
- **Use Case Purpose:** The Hall Clerk uses this functionality to mark the attendance for the workers of the hall
- **Use Case Precondition:** The hall Clerk has the correct credentials to login into the system
- **Use Case PostCondition:** The Attendance status of the workers will be updated for the warden to check.
- **Failure Condition:** The hall clerk doesn't have valid credentials to make changes to the system
- **Actors:** Hall Clerk

User Class: Mess Manager

4.18 Mess Charges

Priority: High

- **Use Case Name:** Enter Mess Charge
- **Use Case purpose:** The Mess manager will use this functionality to enter the mess fee to be paid by various students of the hall.
- **Use Case Precondition:** The mess manager has the login id and password to enter the system
- **Use Case PostCondition:** The list of all the students who have to pay their mess fee is updated.
- **Failure Condition:** The mess charge is already entered for a particular student.
- **Actors:** Mess Manager.

5.Other Non-functional Requirements

5.1 Performance R equirements

- The flagship requirement is python 3.0 should be installed
- It should be able to handle multiple logins

5.2 Safety Requirements

- All the users must remember their usernames and password as there is no facility of forgetting password or username.

5.3 Security Requirements

- The various stakeholders can enter the system only when they have the correct login credentials and the passwords of the users are stored in the database in an encrypted form.

5.4 Software Quality Attributes

- **Correctness:** This system should satisfy the normal regular Hall Management operations precisely to fulfil the end-user objectives
- **Efficiency:** Enough resources to be implemented to achieve a particular task efficiently without any hassle.
- **Integrity:** The system should focus on securing the hall information and avoid data losses as much as possible
- **Portability:** The system should run in any of the Windows/Linux/ mac OS environments.
- **Usability:** The system should provide a user manual to every level of users.
- **Testability:** The system should be able to be tested to confirm the performance and clients specifications.
- **Maintainability:** The system should be maintainable.

5.5 Business rules

- The software will be free to use for all the various stakeholders. The source code will be publicly hosted for free use, modification and to get any useful advice to enhance our system.

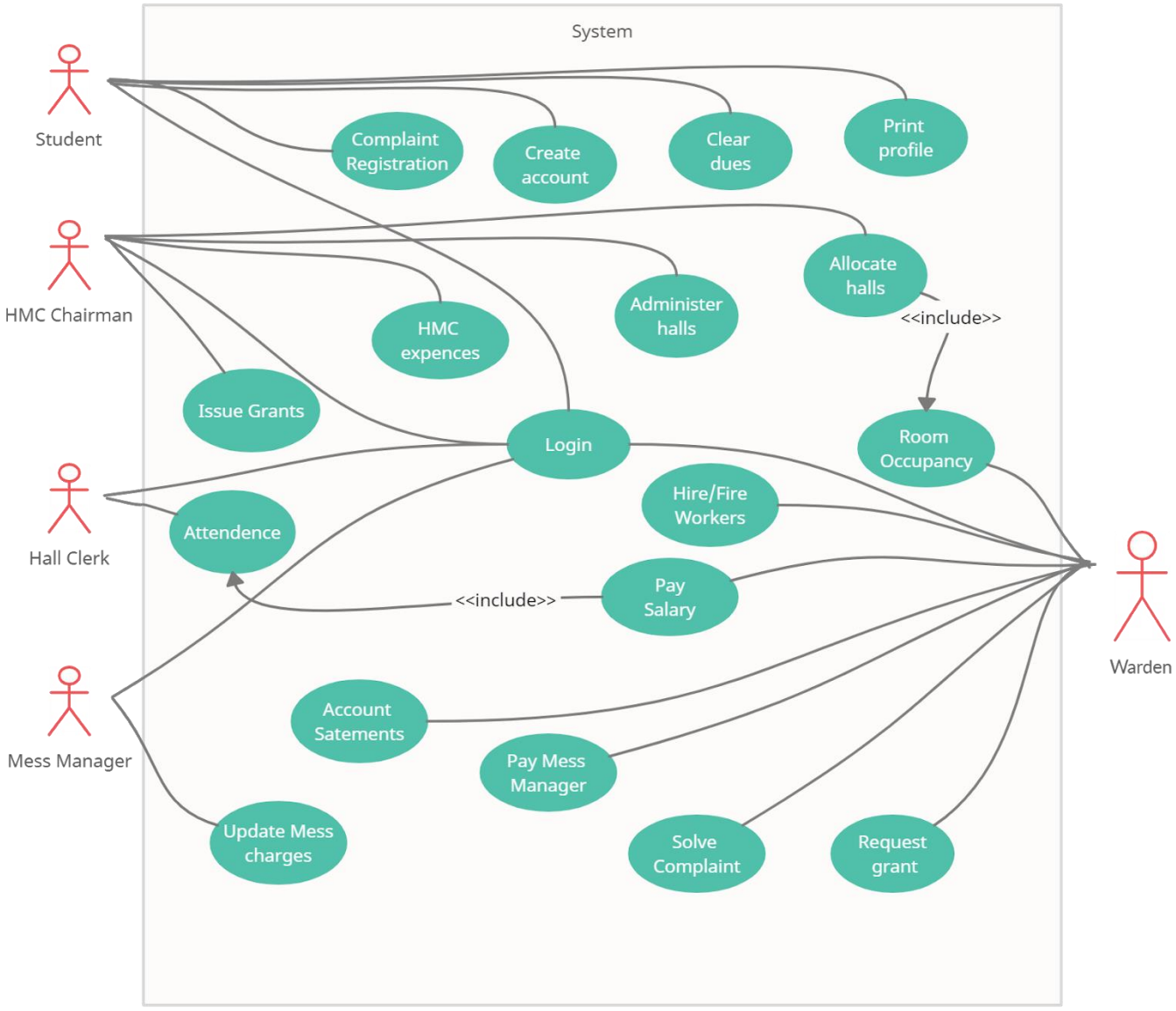
6.Other Requirements

6.1 Appendix A: Glossary

ATR - Action Taken Report
OS - Operating system
HMC - Hall Management Committee

6.2 Appendix B: Analysis Models

Use Case Diagrams :



HMS Class diagram :